Khilchevs'ka V. S. Features of irritable bowel syndrome in children. Journal of Education, Health and Sport. 2025;84:65376. eISSN 2391-8306. https://dx.doi.org/10.12775/JEHS.2025.84.65376
https://apcz.umk.pl/JEHS/article/view/65376
https://zenodo.org/records/17088173

The journal has had 40 points in Minister of Science and Higher Education of Poland parametric evaluation. Annex to the announcement of the Minister of Education and Science of 05.01.2024 No. 32318. Has a Journal's Unique Identifier: 201159. Scientific disciplines assigned: Physical culture sciences (Field of medical and health sciences);
Health Sciences (Field of medical and health sciences). Punkty Ministerialne 40 punktów. Załącznik do komunikatu Ministra Nauki i Szkolnictwa Wyższego z dnia 05.01.2024 Lp. 32318. Posiada Unikatowy Identyfikator Czasopisma: 201159. Przypisane dyscypliny naukowe: Nauki o kulturze fizycznej (Dziedzina nauk medycznych i nauk o zdrowiu); Nauki o zdrowiu (Dziedzina nauk medycznych i nauk o zdrowiu).
The authors declare that there is no conflict of interests regarding the publication of this paper.
Received: 06.07.2025. Revised: 16.07.2025. Accepted: 11.08.2025. Published: 28.08.2025.

UDK 616.34-008-053.2:001.891.7

FEATURES OF IRRITABLE BOWEL SYNDROME IN CHILDREN

V. S. Khilchevs'ka

HSEE Ukraine «Bukovinian State Medical University»

Khilchevs'ka V. S. - PhD, prof. assistant of the department of pediatrics and children infectious desiases

Abstract

Bowel diseases and disorders take a significant place among digestive system pathology in children. Overall goal of the research is a study of clinical and paraclinical indices for verification of Irritable Bowel Syndrome (IBS) in children. A complex clinical, anamnestic and paraclinical research of 35 children 3 to 16 years aged was analyzed. IBS with constipation were found in 32 children (91,4%); IBS with pain and flatulence – in 2 children (5,7%); only 1 patient had IBS with diarrhea (2,9%). IBS was found more often in children of preschool and primary school age, was characterized by prolonged relapsing course and same frequency in both genders. Clinical severity of the disease correlated with older age, overweight, signs of vegetative-vascular dystonia and cholestasis.

Key words: children; diagnostics; clinical and paraclinical indices; irritable bowel syndrome.

Introduction. The high prevalence of irritable bowel syndrome (IBS) in all age groups of the Ukrainian population and its features such as multisystemic complaints, a variety of psychosocial factors, the lack of an unambiguous diagnostic marker, and therefore an effective treatment method, make this problem highly relevant for scientific and epidemiological research. Its prevalence among children and adolescents in the USA and Europe is about 10-14%. The level of PBS detection among children in Ukraine is 40-50% lower than the global average, which analysts explain by underdiagnosis in favour of organic pathology.

Scientific literature latest data overview and analysis. Among all functional bowel disorders, IBS has been consistently ranked first in terms of prevalence and study for many years [1, 6]. In fact, the development of criteria for the diagnosis of functional gastrointestinal disorders by a group of gastroenterologists from Italy, the USA and Canada began with the study of IBS long before the creation of the Rome I criteria. Subsequently, the dynamics of changes and additions to the definition, classification and evaluation criteria of IBS, including in children, are presented in the Rome criteria from the first (1994) to the latest fourth consensus (2016) [4].

The criteria for IBS are quite clearly defined in the Rome IV criteria, which take into account the presence, frequency, duration of pain in combination with abnormal stool frequency and form. Pathology is considered as recurrent abdominal pain, at least 1 day per week for the last 3 months, associated with two or more of the following symptoms 1) with defecation; 2) with changes in stool frequency; 3) with changes in stool shape. The criteria are valid if they have been present for the past 3 months with symptoms appearing at least 6 months ago [2]. Currently, only the term ‘pain’ is used as the main diagnostic criterion for IBS, most often pain at the time of defecation. The term ‘abdominal discomfort’ was removed from the criteria for PBS, which, according to experts, has no diagnostic value and often disorients patients during diagnosis. Thus, today, the main symptom of IBS is abdominal pain associated with defecation and bowel movements, rather than discomfort, bloating, stretching, or any other patient sensations [3, 11].

The classification of IBS according to the Rome IV criteria includes the following variants: 1) with predominance of constipation, 2) with predominance of diarrhoea, 3) mixed type (alternation of constipation and diarrhoea), 4) nonspecific. When dividing into variants, it is proposed to take into account the peculiarities of the consistency and shape of the stool,

namely the proportion of changed stool (formalised, unformed) in relation to the total volume. This is a rather complicated, delicate, not very pleasant clinical and anamnestic stage of diagnosis for the clinician and patient, which allows not only to suspect IBS but also to significantly reduce the proportion of its nonspecific variant, as stated in the Rome III criteria [7, 9].

The etiology and pathogenesis of IBS are complex and are not yet fully understood. Not one, but several etiological factors and pathophysiological mechanisms play a role in the formation of the disease. In each specific clinical case, the combination of etiopathogenetic mechanisms is individual. Among them, the following are currently of particular relevance socio-economic status of the family, genetic predisposition, the possibility of the child's disease formation by parents suffering from IBS, psychological aspects, visceral hypersensitivity, gastrointestinal motility disorders, changes in the neuroendocrine system (brain-gut axis), vegetative-vascular dysfunction (VSD), the concept of post-infectious IBS, microbiota imbalance and, finally, certain nutritional factors [1, 3].

The main difficulty in diagnosing IBS is the need to exclude any organic pathology during a routine clinical examination, in other words, to identify ‘alarm’ symptoms. These include unmotivated weight loss, intense localised abdominal pain, night symptoms, fever, hepatomegaly, splenomegaly, blood in the stool (including occult), anaemia, leukaemia, increased ESR, and colon cancer in relatives. In the presence of the above symptoms, which can exclude PBS, the child should be hospitalised in the gastroenterology department to verify the diagnosis with additional diagnostic procedures as indicated [5, 9].

The main characteristics of IBS in children are the variability of complaints, lack of progression, weight loss, associated with stress factors and have a connection with other functional diseases. General complaints in children occur regardless of the variant of IBS: headache, fatigue, cardialgia, difficulty breathing, feeling of lumps when swallowing, nausea, feeling of quick satiety, overflow in the upper abdomen, trembling, urinary disorders. Note the discrepancy between the duration of the disease, numerous complaints and the child's satisfactory physical condition. Objectively, signs of astheno-vegetative and astheno-depressive syndromes are determined, and palpation reveals pain throughout the entire colon or part of it [5]. Some authors consider the formation of IBS as an autonomic visceral dysfunction that occurs due to a violation of the regulatory influence of the autonomic nervous system and correlates with the symptoms of vegetative dysfunction [1, 8, 10].

Usually, in IBS, general clinical and biochemical tests do not reveal pathological changes, a small amount of mucus is found in the coprogramme, and worm infestation may be detected. Laboratory screening parameters deserve special attention, especially the detection of haemocolitis (Gregersen test).

Thus, the diagnosis of IBS is based on the history and clinical picture, physical status, minimum required laboratory tests and, if clinically necessary, instrumental diagnostics. In order to exclude organic pathology, endoscopic (colonoscopy, rectomanoscopy) and X-ray contrast examination (irrigography) are the most important instrumental methods of bowel examination.

Goal of the research. The aim of the research was to study clinical, anamnestic and paraclinical indicators in the verification of IBS in children.

Material and methods. We studied 35 patients of the gastroenterological department of the Chernivtsi Regional Clinical Hospital aged 3 to 16 years with IBS. The mean age of the examined children was 8.9±4.3 years, with a slight prevalence of boys (54.3%) and rural residents (55.4%). A fairly significant proportion of rural residents among children with IBS does not coincide with the literature [3], but this can be explained by the profile of the regional children's hospital. 40.0% of sick children were of preschool age, 60.0% were schoolchildren, mostly of early school age.

The examination of the children was aimed at excluding organic intestinal lesions. The examination included clinical and biochemical blood tests, general urinalysis, coprocytogram, Gregersen's reaction, bacteriological examination of stool, ultrasound examination of the abdominal cavity, endoscopic examination (rectoromanoscopy) as indicated, radiographic examination (irigography) as indicated, consultation with a neurologist and other narrow specialists). Children with chronic constipation who had abnormalities of the dolichosigma and dolichomegacolon type were not included in the analysis. Discriminative and correlation methods of statistics were used using the Statistica 8.0 Software.

Results and discussion

Literature data indicate that the most common variant of IBS is IBS with a predominance of diarrhoea, especially in school age []. The main causes of IBS in adolescents are psycho-emotional factors: stress at school and at home, conflict situations, overload, anxiety, and depression. In our study, the patients were distributed as follows: PBS with constipation was observed in 32 children (91.4%), PBS with pain and flatulence - in 2

children (5.7%), and symptoms of PBS with diarrhoea were detected in only 1 patient (2.9%). The main clinical manifestations were abdominal pain (97.0%), constipation (91.4%), flatulence (54.4%), in most children (80.0%) abdominal pain was associated with and relieved after defecation. In a detailed clinical characterisation of children with different forms of PBS, we found that most often children suffered from abdominal pain. The pain was more often localised around the navel - in 85,0% of patients, and in the right or left iliac region in 60,0% of children.

The duration of the disease was distributed as follows: less than half (45.7%) suffered from IBS for less than one year, and every third child (37.2%) - from three to six years. An analysis of social status revealed that every fifth child (20.0%) with PBS was from a single-parent family with no father. The presence of 3 or more children in the family was also detected in 20.0% of patients. It was found that in 22.8% of children, exacerbation of the disease was most often associated with the effect of stress factors, mainly in the family, and in 34.3% of cases - with overwork at school. There was no association of IBS manifestations with perinatal indicators, as well as with the type of feeding of children in the first year of life, most of whom (62.8%) were breastfed.

The structure of the concomitant pathology was dominated by vegetative-vascular dysfunction (54,3%), functional disorder of the gallbladder (65,7%), worm infestation (mainly ascariasis) (20,0), and encopresis (8,6%). The manifestations of vegetative-vascular disorders were observed in the form of tension headache (28,0%), cold extremities (41,5%), dysuric phenomena (12,5%), white dermographism (46,5%).

In laboratory tests, the general blood and urine tests of children with IBS were unremarkable. Three children (8,6%) were diagnosed with mild anaemia, including one patient with hypochromia (colour index 0,75). A coprological study in 94,5% of patients with IBS revealed moderate steato-, creato- and amylorrhoea, starch grains, neutral fat, soaps, and soft fibres were in acceptable amounts. The coprocytogram analysis revealed no signs of absorption disorders and inflammation, and the Gregersen test was negative. Biochemical parameters of blood serum were within the age-related norm. Bacteriological examination of stool did not reveal microorganisms of the pathogenic intestinal group.

Ultrasound examination of the abdominal cavity revealed moderate hepatomegaly (1-2 cm increase in size from the age norm) in 40,6% of children, peribiliary infiltration in 59,4% of patients, and gallbladder wall compaction in 40.0% of children. According to the results of

ultrasonography, hypertensive forms of gallbladder dysfunction prevailed in the examined children, and 65,7% of children had deformity of the gallbladder in the body area or deformity with an S-shaped outlet.

The severity of IBS symptoms was significantly ($p<0,05$) correlated with the child's age ($r=0,40$), body mass index ($r=0,42$), VSD ($r=0,45$), increase in gallbladder size ($r=0,42$), and peribiliary infiltration ($r=0,38$). Thus, IBS is more common in older preschool and primary school age, is characterised by a long recurrent course and is equally common in children of both sexes. Excess body weight, vegetative-vascular dysfunction, cholestasis, social stress factors, and overwork at school should be considered as factors that determine the development of IBS in children

Conclusions

Irritable bowel syndrome in children is not an isolated disease, but often part of a complex of functional and psycho-emotional disorders. For successful treatment, it is important to identify concomitant conditions and work in a multidisciplinary team: gastroenterologist, psychologist, nutritionist. When making a diagnosis of IBS, the Gregersen reaction is a mandatory routine method of excluding haemocolitis. In children diagnosed with IBS with constipation and pain, it is mandatory to exclude intestinal abnormalities and verify concomitant hepatobiliary pathology, including cholestasis syndrome. In children diagnosed with IBS with diarrhoea, celiac disease and lactase deficiency must be excluded. Children with functional bowel pathology require a neurologist's consultation with subsequent correction of the vegetative dysfunction.

Children who complain of abdominal pain associated with psycho-emotional stress in combination with symptoms of intestinal dyspepsia (constipation, diarrhoea, flatulence) need a comprehensive examination to identify intestinal pathology. In children diagnosed with irritable bowel syndrome with constipation and pain, it is mandatory to exclude intestinal developmental abnormalities, diagnose and treat concomitant hepatobiliary pathology, including cholestasis syndrome and correct vegetative-vascular dysfunction.

References:

1. Kriuchko T.O., Shpeht T.V., Zinkovska S.M. Osoblyvosti neirohumoralinoji reguliacii v ditej iz sindromom podraznenogo kyshechnyka [Peculiarities of neurohumoral regulation in children with Irritable Bowel Syndrome]. Zdorovie rebenka, 2008;8:58-61. (in Ukrainian)

2. Groen J, Gordon M, Chogle A, Benninga M, Borlack R, Borrelli O, Darbari A, Dolinsek J. ESPGHAN/NASPGHAN guidelines for treatment of irritable bowel syndrome and functional abdominal pain-not otherwise specified in children aged 4-18 years. J Pediatr Gastroenterol Nutr. 2025 Aug;81(2):442-471.

3. Cai LL, Li X, Cai QH, Guo SX, Zhang Y, Sun WC, Zhao ZH, Hu SY. Irritable bowel syndrome in children: the placebo response rate and influencing factors a meta-analysis. Pediatr Res. 2024 May;95(6):1432-1440.

4. Majdannyk V.G. Rymsiki kryterii IV (2016): scho novoho? [Rome IV (2016): what's new?]. Mizhnarodnyi zhurnal pediatrii, akusherstva ta hinekolohii, 2016; 10(1): 8-18. (in Ukrainian)

5. Order of Ministry of Health of Ukraine N59 from 29.01.2013 "Pro zatverdzhennia unifikovanyh klinichnyh protokoliv medychnoi dopomohy ditiam iz zahvoriuvanniamy orhaniv travlennia" [About approval of standardized protocol of medical care of children with diseases of digestive system]. Kyiv, 2013:143-158. (in Ukrainian)

6. Shadrin O.H., Platonova O.M. Monitoring poshyrenosti syndromu podraznennoho kyshechnyku sered dytiachoho naselennia Ukrainy. [Monitoring of irritable bowel syndrome mortality among children population of Ukraine]. Sovremennaja pediatrija, 2013;4(52):84-87. (in Ukrainian)

7. Shadrin O.H., Platonova O.M., Stareci O.O. Suchasni pidhody do dyferencialinoi diagnostiki funkcionalinyh zahvoriuvani kyshechnyka u ditej. [Modern approaches to differential diagnosis of functional gastrointestinal disorders in children]. Zdorovie rebenka, 2013;4(47):76-82. (in Ukrainian)

8. Sandhu BK, Paul SP. Irritable bowel syndrome in children: pathogenesis, diagnosis and evidence-based treatment. World J Gastroenterol. 2014 May 28;20(20):6013-23.

9. Chiou E. Functional abdominal pain and irritable bowel syndrome in children and adolescents. Therapy. 2011. Vol. 8 (3). P. 315-331.

10. Lovell RM, Ford AC. Global prevalence of and risk factors for irritable bowel syndrome: a meta-analysis. Clin Gastroenterol Hepatol. 2012. Vol.10. P. 712-721.

11. Palsson O, Heymen S, Whitehead WE. Abdominal pain versus abdominal discomfort: implications for diagnostic assessment of irritable bowel syndrome (IBS). United Eur Gastroenterol J. 2014. Vol. 2. P. 405-407.